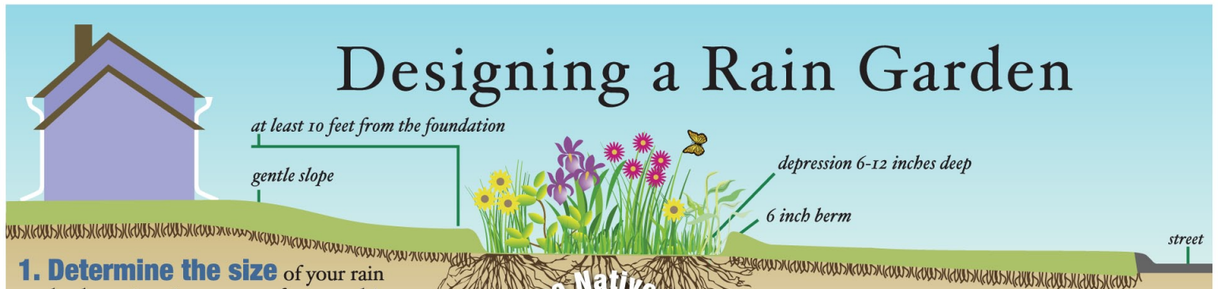
Designing a Rain Garden



1. Determine the size of your rain garden by estimating your roof area or driveway square footage. The garden should be about one-third the size of the area providing runoff.

2. Choose a spot at least 10 feet away from your foundation, and down-slope from your downspout, sump pump outlets, or other runoff source.

3. Dig a shallow, flat-bottomed hole with gradually sloping sides. The average depth of a rain garden is 6"-12". Have a spot located in your landscape for excavated materials or build a berm on the downside of your rain garden. You may want to test your soil's pH, as wildflowers grow best in soil with a pH level between 5.5-7.5. **Call 1-800-DIG-RITE before you dig.**

4. Test the overflow pattern. Fill the excavated area with water and observe the overflow to ensure it flows away from buildings.

5. Direct your runoff into your rain garden if necessary by digging a shallow channel or using drainpipe.

6. Plant! Mix your amendments in the bottom of the garden (if you are using them). Place the plants at the appropriate spacing, then check your arrangement before digging holes and planting. Evaluate the texture and color of adjacent plants and make any design adjustments. **MULCH: add a 3-inch layer of mulch.** If you add mulch before planting, simply move it aside when digging holes, or after planting, place mulch loosely around plants. Untreated shredded hardwood is best as it won't float out of your garden, but any mulch is acceptable.

Why Use Native Plants?

Roots of native plants are much longer than non-natives, absorbing 30% more water than a lawn of the same size.

Maintain your rain garden:

- Water your newly-planted rain garden during its first growing season.
- Weed regularly for the first year.
- Remove any dead stems or seed heads that do not appeal to you.
- Evaluate your rain garden each year. Fill any holes with the addition of other appropriate native plant species.
- To keep your garden looking neat, maintain its boundary by clipping and mowing. Consider edging the rain garden with natural stone on the downhill side. Avoid using a raised edge treatment where water flows into the rain garden.
- In early spring, cut back the dormant vegetation to stimulate new growth. Leave the plants standing throughout the winter, for visual interest. Many of the native grasses look especially attractive during this time of year.
- Do not spread or spray lawn fertilizers too close to your rain garden. When native plants are fertilized, especially with nitrogen, they tend to grow too tall to hold themselves upright. Fertilizing can stimulate weed growth and create competition for the native plants.

Calculate Your Rain Garden Size

How to figure the amount of space and number of plants you'll need.

How much water? Define your runoff area *(e.g. 200 sq. ft. of roof or driveway).*

What size garden? Divide the runoff area by 3 to obtain the rain garden size *(200÷3=66.6 or 67 sq. ft)* or fit the garden to your space.

How many plants? Your garden size divided by 2.25 for plants spaced 18" apart. *(67 divided by 2.25=29.7. Round to 30).* So 30 plants are needed for the 67 sq. ft. garden in our example.

Use same calculation to add a rain garden to any drainage area.

Percolation Test

Test your soil to calculate how much water will infiltrate in 24 hours.

1. Dig a 12" deep hole.
2. Fill with water. Let saturate for an hour.
3. Refill hole. Mark water level.
4. Measure water level after 1, 2, & 4 hours.
5. Calculate how much will infiltrate in 24 hours.

Fix Your Soil

If the composition of the soil does not allow for proper drainage (see percolation test) you may need to fix it. Excavate to twice the desired depth, then fill the bottom half with the amendment materials. You can mix materials right in your garden.

50% sand +
25% topsoil +
25% organic matter.

What About Mosquitoes? Stormwater runoff entering your rain garden should disappear within 24-48 hours of a rain event. Mosquitoes need at least a week of standing water to complete their life cycle. A poorly maintained bird bath or rain gutter is a more likely breeding ground. In time, your rain garden will become its own ecosystem, attracting hungry bats, dragonflies and other predators of the mosquito, thus naturally eradicating them from your area.

For more information about rain gardens, rain barrels, and other ways you can help with local efforts to keep water clean, visit:

www.jamesriverbasin.com • www.springfieldmo.gov/stormwater • www.watershedcommittee.org

Create a

Rain Garden

Protect our water resources with a beautiful landscape

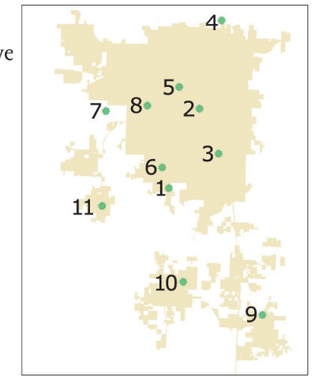
What Is a Rain Garden?

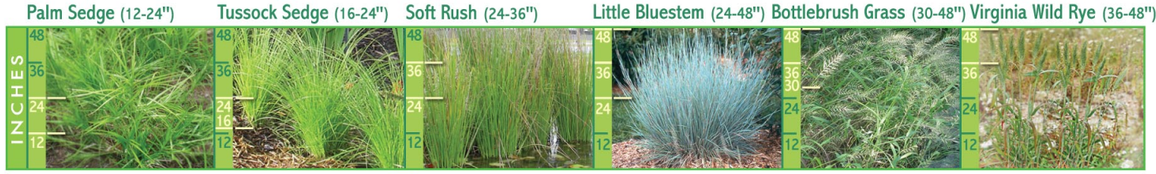
Rain gardens are shallow depressions filled with native plants designed to catch and absorb storm water runoff from roofs, streets, parking lots and other areas. Storm water runoff can negatively impact our waterways by increasing erosion and contributing harmful pollutants picked up from yards, streets, and parking lots. Rain gardens help reduce these negative impacts and recharge the groundwater aquifer by utilizing storm water runoff as a resource rather than channeling it to storm drains which lead directly to area creeks, rivers and lakes. Water that is caught in a rain garden either infiltrates into the ground, is taken up by plant roots, or evaporates into the air. Native plants are a good choice for rain gardens because they are adapted to our local growing conditions. They have massive root systems that keep soil from eroding, help water soak into the ground, and keep the plants alive during droughts. Native plants are also a vital component in our local web of life as they provide food and shelter to insects including pollinators.

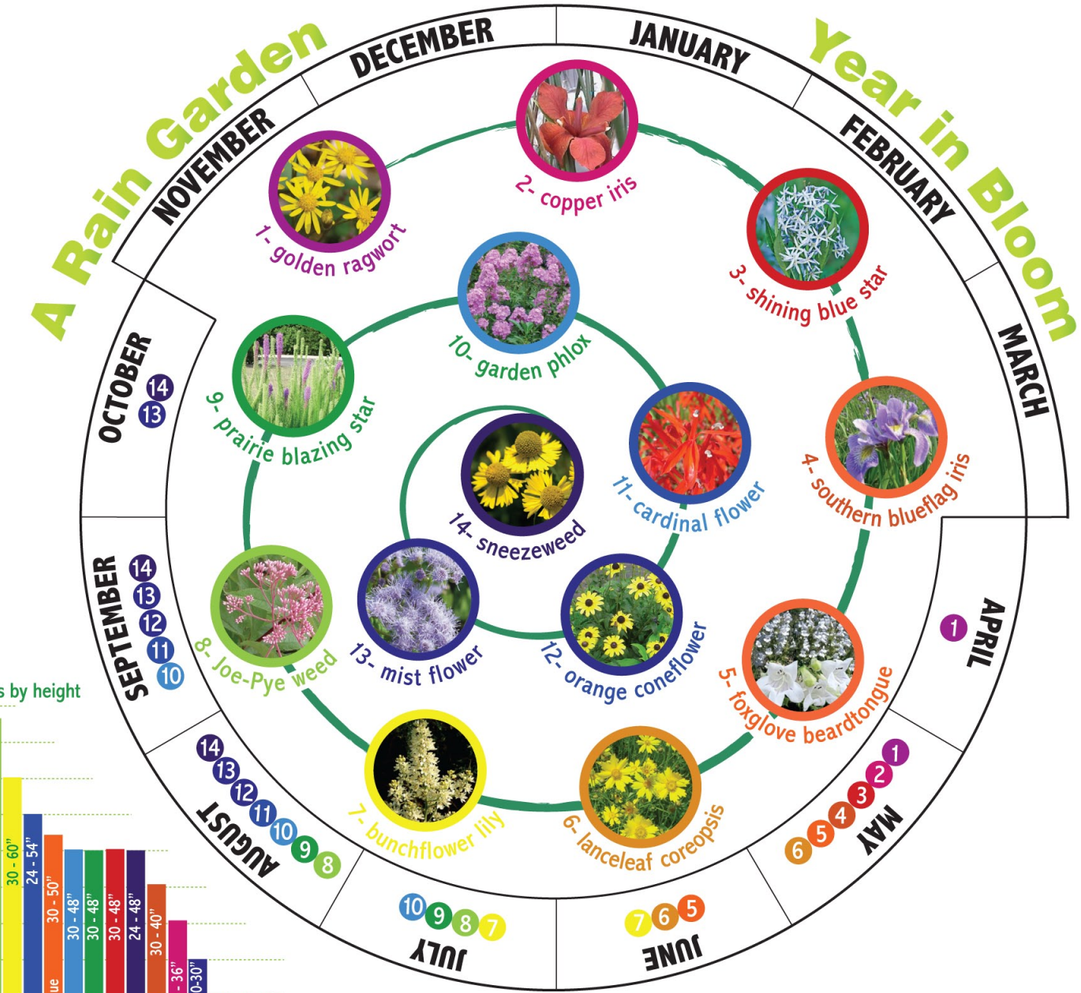
Local Rain Garden Demonstration Projects:

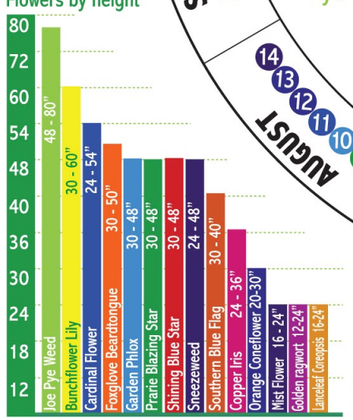
For more information and photos: www.springfieldmo.gov/stormwater

1. Springfield-Greene County Library Center, 4653 S. Campbell Ave
2. Rountree Neighborhood, 1100 Block S. Weller Ave.
3. First Unitarian Universalist Church, 2434 E. Battlefield Rd.
4. Watershed Center, 2450 E. Valley Water Mill Rd.
5. Community Foundation of the Ozarks, 425 E. Trafficway St.
6. Horace Mann Elementary, 3745 S. Broadway Ave.
7. Rutledge-Wilson Community Farm Park, 3825 W. Farm Rd. 146
8. Cruse Dog Park, Grand and Kansas Expy.
9. Ozark 4-H Building, Finley River Park
10. Park Hill Subdivision, Nixa
11. Battlefield City Hall, 5434 S. Tower Drive

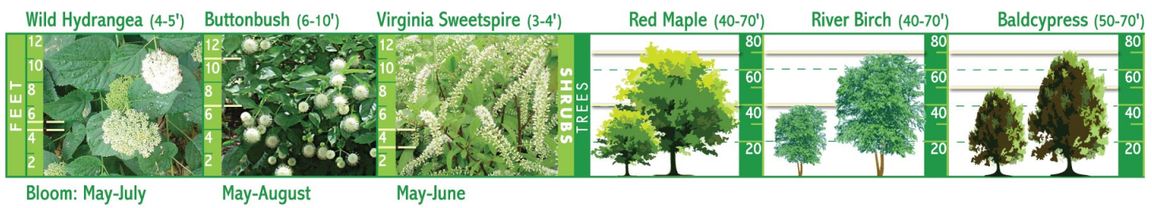








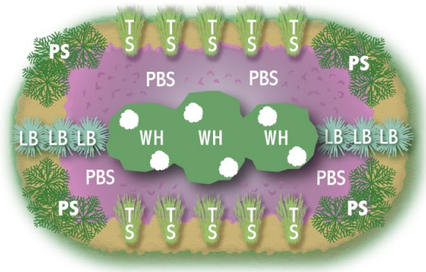
Color bars correspond to calendar colors.



Rain Garden Ideas

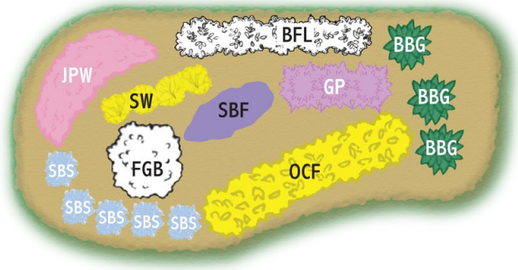
This design features mainly grasses mixed with flowering plants in white and purple. Grasses work well to slow the flow of water where it enters the garden. Colors correspond to bloom.

PS = Palm Sedge
LBS = Little Bluestem
WH = Wild Hydrangea
PBS = Prairie Blazing Star
TS = Tussock Sedge



This design features a colorful mix of plants that bloom from May through October. Colors correspond to bloom.

BFL = Bunchflower Lily
BBG = Bottlebrush Grass
FGB = Foxglove Beardtongue
JPW = Joe Pye Weed
GP = Garden Phlox
OCF = Orange Coneflower
SBF = Southern Blue Flag
SBS = Shining Blue Star
SW = Sneezeweed



PLAN

Plant height & blooming. Place taller plants in the middle for a rain garden that is viewed from all sides, or place in the back if your garden is along a fence. Think about when blooms appear. Choose a variety of plants that bloom throughout the growing season.
Use this worksheet to sketch your ideas estimating the garden's size and shape, plant selection, placement and quantity, rock, or any other design features. Scale: 1/2" = 1'